

Business Statistics, MGT 233
Chapters 4, 5 & 6 Formula Sheet

Counting Rules

Permutation ${}_n P_x = \frac{n!}{(n-x)!}$

Combination ${}_n C_x = \binom{n}{x} = \frac{n!}{x!(n-x)!}$

Elementary Probability Rules

$P(A \cup B) = P(A) + P(B) - P(A \cap B)$ addition rule

$P(A \cap B) = P(A) \cdot P(B|A)$ dependent

$P(A \cap B) = P(A) \cdot P(B)$ independent

$P(A|B) = \frac{P(A \cap B)}{P(B)}$ conditional

Probability Distribution Rules

Complementary Rule $P(X > x_i) = 1 - P(X \leq x_i)$

Distribution Functions

Binomial Probability Distribution $f(X = x_i | n, p) = {}_n C_x p^x (1-p)^{n-x}$

$E[x] = \mu = n \cdot p$

$\sigma^2 = n \cdot p(1-p)$

Poisson Probability Distribution $f(X = x_i | \mu) = \frac{e^{-\mu} \mu^x}{x!}$

$E[x] = \mu$

Normal Transforms

$z = \frac{x - \mu}{\sigma}$

$x = \mu + z\sigma$